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| 10/552,467  | 10/07/2005  | Tetsujiro Kondo      | 278694US6PCT        | 2209             |
| 22850 7590 08/25/2008<br>OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.<br>1940 DUKE STREET<br>ALEXANDRIA, VA 22314 |             |                      |                     |                  |
| EXAMINER<br>THIRUGANAM, GANDHI  |             |                      |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/552,467

**Applicant(s)**

KONDO ET AL.

**Examiner**

GANDHI THIRUGANAM

**Art Unit**

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

**DETAILED ACTION**

***REMARKS***

The response received on 18 June 2008 has been placed in the file and was considered by the examiner. An action on the merits follows.

Applicant has amended claims 1,8,14 and 15. Claim 16 has been added. No claims have been canceled. Claims 1-16 are pending.

Examiner withdraws the claim objections of claims 1, 8 and 15 in view of the pending amendment.

Examiner withdraws the USC 101 rejection of claim 15 in view of the pending amendment.

The USC 112 and 102 rejections stand. See Response to arguments below.

***Response to Arguments***

1. Applicant's arguments filed 16 June 2008 have been fully considered but they are not persuasive.

In response to applicant's argument on page 10-11 relating to the USC 112 rejection of the term "class tap":

Applicant has put a "." at the end of his quote, but in the claims there is no such ".". Claim 7 states "class determination means for extracting multiple pixels corresponding to a target pixel in the expanded image as a class tap from the motion-blurring mitigated image and". This seems to imply that a "class tap" is a type of data structure that holds a correspondence list.

The examiner has read pg. 49 line 16 – pg. 50 line 2 of the specification and sees no mention of the term “class tap” or the term “tap”. While agreeing with applicant’s summary (pg. 11 lines 4–6) of the paragraph (spec, pg. 49 line. 16 - pg. 50 line 2), that “... that image data is supplied to a class pixel group cut-out section 711 that cuts out pixels necessary for the class classification for the purpose of representing a degree of movement.” How does this relate to “... defined as extracted multiple pixels corresponding to a target pixel in an expanded image.”? The class pixel group cut-out section 711 only removes pixels it has no mention of a correspondence of multiple pixels to a single pixel and applicant has defined “class tap” on page 11 lines 7-8.

For the purpose of examination, the examiner will use applicant’s definition of “class tap” as extracted multiple pixels corresponding to a target pixel in an expanded image.

In response to applicant’s argument that Kondo fails to teach “into a space-time location in each image, corresponding to the motion vector”, on page12-13, the examiner disagrees with applicant’s reading of Kondo.

Applicant’s concludes “Therefore, in the second frame, it is not necessary to process mitigating the motion blur.” The device of Kondo uses video as an input (See Fig. 3, ¶0339). Fig. 12 clearly shows that the motion vector is computed on the first (n) and second (n+1) frame. The device of Kondo will then compute a motion vector of frame (n+1) and (n+2). The processing of the video shows the space-time location.

The rejections of claims 1-15 stand.

***Claim Objections***

2. Claim 16 is objected to because of the following informalities:

Applicant states "output configured..." Examiner believes the claim should be read as "output section configured..."

Appropriate correction is required.

***Specification***

3. The disclosure is objected to because of the following informalities:

Page 49 Line 25 has the word "cur". The examiner believes the word should be "cut".

Abstract Line 10 states "A output section". It should be "An output section"

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 7 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regards to claim 7 and 14, the term "class tap" is not defined nor is it well known in art. The term "class tap" is only mentioned in the specification on pg 7 lines 15-27.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim s 1-5, 8-12 and 15-16 rejected under 35 U.S.C. 102(b) as being anticipated by Kondo et al. (PGPub #2004/0021775), hereafter referred to as Kondo.

Regarding **claim 1**, Kondo discloses an apparatus for processing an image, said apparatus comprising:

motion vector detection means (*Kondo, Fig. 2 #102, "Movement Detecting Unit"*) for detecting a motion vector about a moving object (*Kondo, Fig. 2 "Movement vector and Position information thereof".*) that moves in multiple images, each of the multiple images is made up of multiple pixels and acquired by an image sensor having time integration effects, and tracking the moving object; (*Kondo, ¶[1251], "In the above, an example has been given of a case of projecting images in real space having three-dimensional space and time-axis information onto time-space having two-dimensional space and time-axis information, using a video camera"*)

motion-blurring-mitigated object image generation means for generating a motion-blurring-mitigated object image in which motion blurring occurred in the moving object in each image of the multiple images is mitigated by using the motion vector

detected by the motion vector detection means; and (*Kondo, Fig. 2 #106, "Movement Blurring Adjustment Unit"*)

output means for combining the motion-blurring-mitigated object image that is generated in the motion-blurring-mitigated object image generation means into a space-time location, in each image, corresponding to the motion vector, said motion vector being detected by the motion vector detection means, to output it as a motion-blurring-mitigated image. (*Fig. 137, "Image Synthesizing Unit", where the "Background Component Image" and "Foreground Component Image" are combined*)

Regarding **claim 2**, Kondo discloses the apparatus for processing the image according to claim 1,

wherein the motion vector detection means sets a target pixel corresponding to a location of the moving object in any one of at least a first image and a second image, which are sequential in terms of time, and detects a motion vector corresponding to the target pixel by using the first and second images; and (*Kondo, ¶ [0011], "movement vector for indicating relative movement between the pixel data of the frame of interest and the pixel data of the adjacent frame"*)

wherein the output means combines the motion-blurring-mitigated object image into a location of the target pixel in said one of the images or a location corresponding to the target pixel in the other image, said locations corresponding to the detected motion vector. (*Kondo, ¶ [0012], "output as first difference image data, and calculate difference based on the mixture ratio of the pixel of interest of the frame of interest between each pixel of the frame of interest of the image data and each pixel of a second adjacent*

*frame adjacent to the frame of interest of the image data, and output as second difference image data")*

Regarding **claim 3**, Kondo discloses the apparatus for processing the image according to claim 1,

wherein in a processing region of the image, the motion- blurring-mitigated object image generation means turns into a model so that a pixel value of each pixel in which no motion blurring corresponding to the moving object occur becomes a value obtained by integrating the pixel value in a time direction with the pixel being moved corresponding to the motion vector (*Kondo, Fig. 13, where the pixels not changed in the time direction are set at the background region*) and

generates a motion- blurring-mitigated object image in which motion blurring of the moving object included in the processing region is mitigated, based on the pixel value of the pixel in the processing region. (*Kondo, Fig. 2, where the motion blurring is mitigated by the movement vector which is based on pixel value processing of the object*)

Regarding **claim 4**, Kondo discloses the apparatus for processing the image according to claim 3, wherein the motion-blurring-mitigated object image generation means includes:

region identification means for identifying a foreground region, a background region, and a mixed region in the processing region, said foreground region being composed of only a foreground object component constituting a foreground object which is moving object, said background region being composed of only a background



object component constituting a background object, and said mixed region mixing the foreground object component and the background object component; (*Kondo, Fig. 6A and 6B shows the detection of the background, foreground and mixed regions.*)

mixture ratio detection means for detecting a mixture ratio of the foreground object component and the background object component in the mixed region; (*Kondo, Fig. 2 #104, and "Mixture Ratio Calculating Unit"*)

separation means for separating at least a part of region of the image into the foreground object and the background object, based on the mixture ratio; and (*Kondo, Fig. 2 #105, "Foreground/Background Separation Unit"*)

motion-blurring-adjusting means for mitigating motion blurring of the foreground object separated by the separation means based on the motion vector. (*Kondo, Fig. 2 #106, "Movement Blurring Adjustment Unit"*)

Regarding **claim 5**, Kondo discloses the apparatus for processing the image according to claim 3,

wherein the motion vector detection means detects the motion vector every pixel in the image; and (*Kondo, ¶[0018], "generating movement vector information indicating each of the generated movement vectors; wherein, in the weighted difference image data calculating step, the weighted difference is calculated based on the weighting indicated by the weighting information between each pixel of the frame of interest of the image data and each pixel of the adjacent frame adjacent to the frame of interest of the image data,"*, where the motion vector is generated for each pixel)

wherein the motion-blurring-mitigated object image generation means sets the processing region according to the motion vector of the target pixel in the image so that the processing region includes the target pixel, and outputs pixel value in which motion blurring of the target pixel is mitigated in pixel units based on the motion vector of the target pixel. (*Kondo, Fig. 2, where the "Movement Blurring Adjustment Unit" takes in the movement vector and outputs the foreground component with the movement blurring being mitigated.*)

Regarding **claim 8**, Kondo discloses a method for processing an image, said method comprising:

motion-vector-detecting step (*Kondo, Fig. 2 #102, "Movement Detecting Unit"*) of detecting a motion vector about a moving object that moves in multiple images, each of the multiple images being made up of multiple pixels and acquired by an image sensor having time integration effects, and tracking the moving object; (*Kondo, Fig. 2 "Movement vector and Position information thereof".*) (*Kondo, ¶[1251], "In the above, an example has been given of a case of projecting images in real space having three-dimensional space and time-axis information onto time-space having two-dimensional space and time-axis information, using a video camera"*)

motion-blurring-mitigated-object-image-generating step of generating a motion-blurring-mitigated object image in which motion blurring occurred in the moving object in each image of the multiple images is mitigated by using the motion vector detected in the motion-vector-detecting step; and (*Kondo, Fig. 2 #106, "Movement Blurring Adjustment Unit"*)

output step of combining the motion-blurring-mitigated object image that is generated in the motion-blurring-mitigated-object- image-generating step into a space-time location, in each image, corresponding to the motion vector, said motion vector being detected in the motion-vector-detecting step, to output it as a motion- blurring-mitigated image. (Fig. 137, "Image Synthesizing Unit", where the "Background Component Image" and "Foreground Component Image" are combined)

Regarding **claim 9**, Kondo discloses the method for processing the image according to claim 8, wherein the motion-vector-detecting step sets a target pixel corresponding to a location of the moving object in any one of at least a first image and a second image, which are sequential in terms of time, and detects a motion vector corresponding to the target pixel by using the first and second images; and (Kondo, ¶[0011], "movement vector for indicating relative movement between the pixel data of the frame of interest and the pixel data of the adjacent frame")

wherein the output step combines the motion-blurring-mitigated object image into a location of the target pixel in said one of the images or a location corresponding to the target pixel in the other image, said locations corresponding to the detected motion vector. (Kondo, ¶ [0012], "output as first difference image data, and calculate difference based on the mixture ratio of the pixel of interest of the frame of interest between each pixel of the frame of interest of the image data and each pixel of a second adjacent frame adjacent to the frame of interest of the image data, and output as second difference image data")

Regarding **claim 10**, Kondo discloses the method for processing the image according to claim 8, wherein in a processing region of the image, the motion-blurring-mitigated-object-image-generating step turns into a model so that a pixel value of each pixel in which no motion blurring corresponding to the moving object occur becomes a value obtained by integrating the pixel value in a time direction with the pixel being moved corresponding to the motion vector and *(Kondo, Fig.13, where the pixels not changed in the time direction are set at the background region)*

generates a motion-blurring-mitigated object image in which motion blurring of the moving object included in the processing region is mitigated, based on the pixel value of the pixel in the processing region. . *(Kondo, Fig. 2, where the motion blurring is mitigated by the movement vector which is based on pixel value processing of the object)*

Regarding **claim 11**, Kondo discloses the method for processing the image according to claim 10, wherein the motion-blurring-mitigated-object-image-generating step includes:

region identification step of identifying a foreground region, a background region, and a mixed region in the processing region, said foreground region being composed of only a foreground object component constituting a foreground object which is moving object, said background region being composed of only a background object component constituting a background object, and said mixed region mixing the foreground object component and the background object component; *(Kondo, Fig. 6A and 6B shows the detection of the background, foreground and mixed regions.)*

mixture-ratio-detecting step of detecting a mixture ratio of the foreground object component and the background object component in the mixed region; (*Kondo, Fig. 2 #104, "Mixture Ratio Calculating Unit"*)

separation step of separating at least a part of region of the image into the foreground object and the background object, based on the mixture ratio; and (*Kondo, Fig. 2 #105, "Foreground/Background Separation Unit"*)

motion-blurring-adjusting step of mitigating motion blurring of the foreground object separated in the separation step based on the motion vector. (*Kondo, Fig. 2 #106, "Movement Blurring Adjustment Unit"*)

Regarding **claim 12**, Kondo discloses the method for processing the image according to claim 10, wherein the motion-vector-detecting step detects the motion vector every pixel in the image; and (*Kondo, ¶[0018], "generating movement vector information indicating each of the generated movement vectors; wherein, in the weighted difference image data calculating step, the weighted difference is calculated based on the weighting indicated by the weighting information between each pixel of the frame of interest of the image data and each pixel of the adjacent frame adjacent to the frame of interest of the image data," where the motion vector is generated for each pixel*)

wherein the motion-blurring-mitigated-object-image- generating step sets the processing region according to the motion vector of the target pixel in the image so that the processing region includes the target pixel, and outputs pixel value in which motion

blurring of the target pixel is mitigated in pixel units based on the motion vector of the target pixel. (*Kondo, Fig. 2, where the "Movement Blurring Adjustment Unit" takes in the movement vector and outputs the foreground component with the movement blurring being mitigated.*)

Regarding **claim 15**, Kondo discloses a computer-readable memory including a program for allowing a computer to perform a method for processing an image comprising:

detecting a motion vector about a moving object that moves in multiple images, each of the multiple images being is made up of multiple pixels and acquired by an image sensor having time integration effects, and tracking the moving object; (*Kondo, Fig. 2 #102, "Movement Detecting Unit"*) (*Kondo, Fig. 2 "Movement vector and Position information thereof"*). (*Kondo, ¶[1251], "In the above, an example has been given of a case of projecting images in real space having three-dimensional space and time-axis information onto time-space having two-dimensional space and time-axis information, using a video camera"*)

generating a motion-blurring-mitigated object image in which motion blurring occurred in the moving object in each image of the multiple images is mitigated by using the motion vector; and (*Kondo, Fig. 2 #106, "Movement Blurring Adjustment Unit"*)

combining the motion-blurring-mitigated object into a space-time location, in each image, corresponding to the motion vector, to output it as a motion- blurring-mitigated image. (*Fig. 137, "Image Synthesizing Unit", where the "Background Component Image" and "Foreground Component Image" are combined*)

Regarding **claim 16**, Kondo discloses an apparatus for processing an image, said apparatus comprising:

a detector (*Kondo, Fig. 2 #102, "Movement Detecting Unit"*) configured to detect a motion vector about a moving object (*Kondo, Fig. 2 "Movement vector and Position information thereof".*) that moves in multiple images, each of the multiple images being made up of multiple pixels and acquired by an image sensor having time integration effects, and configured to track the moving object; (*Kondo, ¶ [1251], "In the above, an example has been given of a case of projecting images in real space having three-dimensional space and time-axis information onto time-space having two-dimensional space and time-axis information, using a video camera"*)

a processor configured to generate a motion-blurring-mitigated object image in which motion blurring occurred in the moving object in each image of the multiple images is mitigated by using the motion vector; and (*Kondo, Fig. 2 #106, "Movement Blurring Adjustment Unit"*)

an output configured to combine the motion-blurring-mitigated object image into a space-time location, in each image, corresponding to the motion vector, to output it as a motion-blurring-mitigated image. (*Fig. 137, "Image Synthesizing Unit", where the "Background Component Image" and "Foreground Component Image" are combined*)

### **Claim Rejections - 35 USC § 103**

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo in view of Wang et. Al (Patent #5,557,684), hereafter referred to as Wang.

Regarding **claim 6**, Kondo discloses the apparatus for processing the image according to claim 1,

But does not specifically disclose "further comprising expanded image generation means for generating an expanded image based on the motion-blurring-mitigated image, wherein the output means outputs the expanded image to a location corresponding to the motion vector in a time direction." (*Wang, Fig. 1 shows the mpeg sequence "Flower Garden" where layers are segmented. These regions can have affine transformations completed on them such as "zooming" (Wang, Col. 4 Lines 58-67), where zooming and expanding are defined to be the same thing.*)

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kondo with Wang for the purpose of identifying motion objects and enlarging them for further clarity.

Regarding **claim 13**, Kondo discloses the method for processing the image according to claim 8,

But does not specifically disclose "further comprising expanded-image-generating step of generating an expanded image based on the motion-blurring-mitigated image, wherein in the output step, the expanded image is output to a location corresponding to the motion vector in a time direction." (*Wang, Fig. 1 shows the mpeg*



*sequence "Flower Garden" where layers are segmented. These regions can have affine transformations completed on them such as "zooming" (Wang, Col. 4 Lines 58-67), where zooming and expanding are defined to be the same thing.)*

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kondo with Wang for the purpose of identifying motion objects and enlarging them for further clarity.

10. Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo in view of Wang in further view of Kondo et al (Patent # 5,940,539), hereafter referred to as Kondo2.

Regarding **claim 7** as best understood, Kondo in view of Wang discloses the apparatus for processing the image according to claim 6,

But does not disclose "wherein the expanded image generation means includes: class determination means (*Kondo2, Col. 4 Lines 28-29*) (*Fig. 6 #S3, "Determine Class"*) for extracting multiple pixels corresponding to a target pixel in the expanded image as a class tap from the motion-blurring-mitigated image and determining a class corresponding to the target pixel based on a pixel value of the class tap; (*Kondo2, Col. 6 Lines 45-55, "Predictive taps are formed from nine near pixels  $x_0$  to  $x_8$ ..."*)

storage means for storing predictive coefficients each for predicting a target pixel from multiple pixels in a first image, said multiple pixels corresponding to a target pixel in a second image, said predictive coefficients being obtained by learning between the first and second images every class, said first image having number of pixels

corresponding to the motion-blurring-mitigated image, and said second image having number of pixels more than that of the first image; and (*Kondo2*, Col. 4 Lines 30-31)

predictive value generation means for detecting the predictive coefficients each corresponding to the class detected by the class detection means from the storage means, extracting the multiple pixels corresponding to the target pixel in the expanded image as a predictive tap from the motion-blurring-mitigated image, and generating a predictive value corresponding to the target pixel according to one-dimensional linear combination of the predictive coefficients detected from the storage means and the predictive tap. (*Kondo2*, Col. 4 Lines 32-37)"

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kondo and Wang with Kondo2 for the purpose of predicting a pixel position by a class sort adaptive process.

Regarding **claim 14** as best understood, Kondo in view of Wang discloses the method for processing the image according to claim 13,

But does not disclose "wherein the expanded-image-generating step includes: class-determining step of extracting multiple pixels (*Kondo2*, Col. 4 Lines 28-29) (*Fig. 6 #S3, "Determine Class"*) corresponding to a target pixel in the expanded image as a class tap from the motion-blurring-mitigated image and determining a class corresponding to the target pixel based on a pixel value of the class tap; (*Kondo2*, Col. 6 Lines 45-55, "Predictive taps are formed from nine near pixels  $x_0$  to  $x_8$ ...")

storing step of storing predictive coefficients each for predicting a target pixel from multiple pixels in a first image, said multiple pixels corresponding to a target pixel

in a second image, said predictive coefficients being obtained by learning between the first and second images every class, said first image having number of pixels corresponding to the motion-blurring-mitigated image, and said second image having number of pixels more than that of the first image; and (*Kondo2, Lines 30-31*)

predictive-value-generating step of detecting, in the storing step, the predictive coefficients each corresponding to the class detected in the class-detecting step, extracting the multiple pixels corresponding to the target pixel in the expanded image as a predictive tap from the motion-blurring-mitigated image, and generating a predictive value corresponding to the target pixel according to one-dimensional linear combination of the predictive coefficients detected in the storing step and the predictive tap" (*Kondo2, Lines 32-37*)

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kondo and Wang with Kondo2 for the purpose of predicting a pixel position by a class sort adaptive process.

### ***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GANDHI THIRUGNANAM whose telephone number is (571)270-3261. The examiner can normally be reached on M-Th, 7:30am to 6pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gandhi Thirugnanam/  
Examiner, Art Unit 2624

/Samir A. Ahmed/

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Supervisory Patent Examiner, Art Unit 2624